



116 177 509 111 13 112

#10

SEQUENCE LISTING

<110> Katagiri, Fumi

<120> OOMYCETE FTSZ-MT AS A TARGET FOR
ANTIMICROBIAL-SPECIFIC BIOCIDES

#10

<130> NADII.018A

<160> 32

<170> FastSEQ for Windows Version 4.0

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<211> 535

<212> DNA

<213> Phytophthora infestans

<220>

<221> CDS

<222> (2)...(535)

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cag gct ctg gga cgc tcg ctg gcg ccg cac aag atc acg ctg ggc aaa 97
Gln Ala Leu Gly Arg Ser Leu Ala Pro His Lys Ile Thr Leu Gly Lys
20 25 30

gat atc acc aag gga cta gga gct gga tcc aaa cct gag ctg ggt aaa 145
Asp Ile Thr Lys Gly Leu Gly Ala Gly Ser Lys Pro Glu Leu Gly Lys
35 40 45

cgc tct gcg gaa cag cag aaa gtg gat atc caa cgg atg tta cag gac 193
Arg Ser Ala Glu Gln Gln Lys Val Asp Ile Gln Arg Met Leu Gln Asp
50 55 60

agc aac atg ctg ttt atc acg ggc gga atg ggc ggc gga acc tgc aca 241
Ser Asn Met Leu Phe Ile Thr Gly Gly Met Gly Gly Gly Thr Cys Thr
65 70 75 80

gga gcc gca cct gtc gtg gcc agt gta gcc agg gag ctg ggg atc cta 289
Gly Ala Ala Pro Val Val Ala Ser Val Ala Arg Glu Leu Gly Ile Leu
85 90 95

acg gtc gga gta gta agc aca ccg ttc cga tcc gaa gga ccc aat cgc 337
Thr Val Gly Val Val Ser Thr Pro Phe Arg Ser Glu Gly Pro Asn Arg
100 105 110

act cgt ctg gcc aat gct gga gta aaa gaa ctg gcc aag tac gtc gac 385
Thr Arg Leu Ala Asn Ala Gly Val Lys Glu Leu Ala Lys Tyr Val Asp
115 120 125

acc tta att gtc gtg ccc aac cag aac ttg ctg gct ttg gca gac aag 433
 Thr Leu Ile Val Val Pro Asn Gln Asn Leu Leu Ala Leu Ala Asp Lys
 130 135 140

agc acg acc atg ttg gaa gcc ttc cgg tat gcc gac gac gtg ctg ctt 481
 Ser Thr Thr Met Leu Glu Ala Phe Arg Tyr Ala Asp Asp Val Leu Leu
 145 150 155 160

gaa gga gtt aaa ggt gtc acg gac ttg atc gtt cgc ccg gga ctt atc 529
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 165 170 175

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 Asn Leu

<210> 2
 <211> 178
 <212> PRT
 <213> Phytophthora infestans

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 35 40 45
 Arg Ser Ala Glu Gln Gln Lys Val Asp Ile Gln Arg Met Leu Gln Asp
 50 55 60
 Ser Asn Met Leu Phe Ile Thr Gly Gly Met Gly Gly Thr Cys Thr
 65 70 75 80
 Gly Ala Ala Pro Val Val Ala Ser Val Ala Arg Glu Leu Gly Ile Leu
 85 90 95
 Thr Val Gly Val Val Ser Thr Pro Phe Arg Ser Glu Gly Pro Asn Arg
 100 105 110
 Thr Arg Leu Ala Asn Ala Gly Val Lys Glu Leu Ala Lys Tyr Val Asp
 115 120 125
 Thr Leu Ile Val Val Pro Asn Gln Asn Leu Leu Ala Leu Ala Asp Lys
 130 135 140
 Ser Thr Thr Met Leu Glu Ala Phe Arg Tyr Ala Asp Asp Val Leu Leu
 145 150 155 160
 Glu Gly Val Lys Gly Val Thr Asp Leu Ile Val Arg Pro Gly Leu Ile
 165 170 175
 Asn Leu

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 <213> Phytophthora infestans

<220>
 <221> CDS
 <222> (2)...(220)

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cag cac tta cgc acg acg ctg acg gag aac cgc gtt cag atg gct cct 97
Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro
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gaa ttg act gga gga ttg ggc tgt ggc gct aac ccc gaa gtt ggc cga 145
Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg
      35             40             45

gag gcg gca gag gcc gcg att gat gag att ttg gag cgc gtt cag ggt 193
Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val Gln Gly
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<213> Phytophthora infestans

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Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg
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cag cac tta cgc acg acg ctg acg gag aac cgc gtt cag atg gct cct 97
Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro
20 25 30
gaa ttg act gga gga ttg ggc tgt ggc gct aac ccc gaa gtt ggg 142
Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly
35 40 45
tgagtgactg cgtaaaagcg gtattttttt ttcttacata ctgaccttaa ctattgatta 202
gc cga gag gcg gca gag gcc gcg att gat gag att ttg gag cgc gtt 249
Arg Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val
50 55 60
cag ggt gca aac atg gtttgtctcg gtgacattgc gtttctcaag acgttccgat 304
Gln Gly Ala Asn Met
65
ttgagcgaat gacttggtga tgacaacgat atgattatta acttctgctt ttatgcccct 364
atatag atg ttt gtt act gcg ggt 388
Met Phe Val Thr Ala Gly
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<210> 6
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<213> Artificial Sequence

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<223> PCR primer

<221> misc_feature
<222> (1)...(20)
<223> n = inosine

<400> 6
aaygcngtna ayaayatgat 20

<210> 7
<211> 20
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<213> Artificial Sequence

<220>
<223> PCR primer

<221> misc_feature

<222> (1)...(20)

<223> n = inosine

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gtncncgtnc cncnccccat

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<210> 8

<211> 20

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<220>

<223> PCR primer

<221> misc_feature

<222> (1)...(17)

<223> n = inosine

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<211> 1423

<212> DNA

<213> Phytophthora infestans

<220>

<221> CDS

<222> (2)...(1261)

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5

10

15

cgc cag acc tcc cag tcc gcc act caa cac ctc gcc ttc tct act gaa 97

Arg Gln Thr Ser Gln Ser Ala Thr Gln His Leu Ala Phe Ser Thr Glu

20

25

30

gcc act gat gct gca gct gcc gcg tta cgc atg ggc ttt aaa aag gct 145

Ala Thr Asp Ala Ala Ala Ala Ala Leu Arg Met Gly Phe Lys Lys Ala

35

40

45

cga aaa gac gag gat ggc ggt gtg aaa gtg ggg ctg gag gca gag ccc 193

Arg Lys Asp Glu Asp Gly Gly Val Lys Val Gly Leu Glu Ala Glu Pro

50

55

60

gat tca cca aca gat gtg agc gcc gtt tcg acg cca gta gta gag aag 241

Asp Ser Pro Thr Asp Val Ser Ala Val Ser Thr Pro Val Val Glu Lys

65

70

75

80

aag ctc gtg ccg cca gcc atg agc tcc aca cag cca ctt tgg ctc aca 289

Lys Leu Val Pro Pro Ala Met Ser Ser Thr Gln Pro Leu Trp Leu Thr

85										90					95					
cag	gac	cat	cct	gtg	aca	gac	ctg	tcg	ggc	ttt	gca	ccg	aag	att	gtg	337				
Gln	Asp	His	Pro	Val	Thr	Asp	Leu	Ser	Gly	Phe	Ala	Pro	Lys	Ile	Val					
			100					105					110							
gtg	gtt	ggc	gtc	gga	gga	gct	gga	gga	aat	gcg	gtg	aac	aac	atg	atc	385				
Val	Val	Gly	Val	Gly	Gly	Ala	Gly	Gly	Asn	Ala	Val	Asn	Asn	Met	Ile					
		115					120					125								
gcg	cgc	ggc	ctg	cag	ggg	gtg	gag	ttt	ctt	gtt	tgc	aac	acg	gat	gct	433				
Ala	Arg	Gly	Leu	Gln	Gly	Val	Glu	Phe	Leu	Val	Cys	Asn	Thr	Asp	Ala					
	130					135					140									
cag	cac	tta	cgc	acg	acg	ctg	acg	gag	aac	cgc	gtt	cag	atg	gct	cct	481				
Gln	His	Leu	Arg	Thr	Thr	Leu	Thr	Glu	Asn	Arg	Val	Gln	Met	Ala	Pro					
145					150				155						160					
gaa	ttg	act	gga	gga	ctg	ggc	tgt	ggc	gct	aac	ccc	gaa	gtt	ggc	cga	529				
Glu	Leu	Thr	Gly	Gly	Leu	Gly	Cys	Gly	Ala	Asn	Pro	Glu	Val	Gly	Arg					
			165					170						175						
gag	gcg	gca	gag	gcc	gcg	att	gat	gag	att	ttg	gag	cgc	gtt	cag	ggg	577				
Glu	Ala	Ala	Glu	Ala	Ala	Ile	Asp	Glu	Ile	Leu	Glu	Arg	Val	Gln	Gly					
			180				185						190							
gca	aac	atg	atg	ttt	gtt	act	gcg	ggg	atg	ggg	ggc	gga	aca	ggg	aca	625				
Ala	Asn	Met	Met	Phe	Val	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr	Gly	Thr					
		195					200				205									
ggg	gca	gca	ccc	gtc	att	gct	cag	gct	gcc	tta	gat	gct	ggg	atc	ctc	673				
Gly	Ala	Ala	Pro	Val	Ile	Ala	Gln	Ala	Ala	Leu	Asp	Ala	Gly	Ile	Leu					
	210					215					220									
acc	gta	gct	gtc	gtt	act	aag	ccg	ttc	cgg	ttt	gag	gga	aac	aac	cgt	721				
Thr	Val	Ala	Val	Val	Thr	Lys	Pro	Phe	Arg	Phe	Glu	Gly	Asn	Asn	Arg					
225					230				235						240					
gca	aag	ctt	gcg	gca	caa	ggc	ctc	gct	gaa	ctg	aag	gat	agc	gtc	gat	769				
Ala	Lys	Leu	Ala	Ala	Gln	Gly	Leu	Ala	Glu	Leu	Lys	Asp	Ser	Val	Asp					
			245					250					255							
acg	atg	ctt	gtg	atc	ccg	aac	caa	aac	ttg	ttc	aac	atg	tca	aat	gag	817				
Thr	Met	Leu	Val	Ile	Pro	Asn	Gln	Asn	Leu	Phe	Asn	Met	Ser	Asn	Glu					
			260					265					270							
cgc	acc	tcg	ttg	atg	gac	gca	ttc	aga	atg	gcg	gac	aat	gtg	ctt	ctg	865				
Arg	Thr	Ser	Leu	Met	Asp	Ala	Phe	Arg	Met	Ala	Asp	Asn	Val	Leu	Leu					
		275					280					285								
gac	ggg	gtc	aag	aac	att	tcg	gat	ttg	atg	gtg	atg	cct	ggg	ctc	att	913				
Asp	Gly	Val	Lys	Asn	Ile	Ser	Asp	Leu	Met	Val	Met	Pro	Gly	Leu	Ile					
	290					295					300									
aac	ctt	gac	ttt	gcg	gat	gtt	caa	tcg	gtc	atg	caa	aat	atg	gga	aac	961				
Asn	Leu	Asp	Phe	Ala	Asp	Val	Gln	Ser	Val	Met	Gln	Asn	Met	Gly	Asn					
305					310					315					320					

gct	atg	atg	gga	agt	gga	gag	gcc	gat	gga	gag	aat	cgg	gct	ctg	cgt	1009	
Ala	Met	Met	Gly	Ser	Gly	Glu	Ala	Asp	Gly	Glu	Asn	Arg	Ala	Leu	Arg		
				325					330					335			
gct	gct	gaa	gat	gca	ttg	gcg	aac	cct	ctt	ctg	ggt	gat	att	tcg	att	1057	
Ala	Ala	Glu	Asp	Ala	Leu	Ala	Asn	Pro	Leu	Leu	Gly	Asp	Ile	Ser	Ile		
				340				345					350				
aag	gac	gcc	aag	ggc	atg	atc	gtt	aat	atc	acg	gga	ggc	tcc	gac	ctg	1105	
Lys	Asp	Ala	Lys	Gly	Met	Ile	Val	Asn	Ile	Thr	Gly	Gly	Ser	Asp	Leu		
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acg	cta	ttt	gaa	gtt	gat	gag	gct	gct	gag	cgt	gtg	acg	cgg	gaa	ctt	1153	
Thr	Leu	Phe	Glu	Val	Asp	Glu	Ala	Ala	Glu	Arg	Val	Thr	Arg	Glu	Leu		
						375						380					
gat	gat	cca	cac	gcc	aac	atc	atc	ttc	ggt	tcg	acc	ttc	gac	gac	tcg	1201	
Asp	Asp	Pro	His	Ala	Asn	Ile	Ile	Phe	Gly	Ser	Thr	Phe	Asp	Asp	Ser		
						390					395				400		
ctg	ggc	ggc	aag	cta	cgc	gtc	tcc	gtg	gtt	gcc	act	ggt	att	gcc	gac	1249	
Leu	Gly	Gly	Lys	Leu	Arg	Val	Ser	Val	Val	Ala	Thr	Gly	Ile	Ala	Asp		
				405					410					415			
ccc	gac	aag	tta	tagaagccgt				gatgttggcc				agtatcaaag				1301	
Pro	Asp	Lys	Leu														
				420													
ggaatgacac			ctaattgacgt			gattgctcaa			gaaatctcta			caatttgaag			tggcatcgat		1361
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tt																	1423

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			20					25					30		
Ala	Thr	Asp	Ala	Ala	Ala	Ala	Ala	Leu	Arg	Met	Gly	Phe	Lys	Lys	Ala
		35					40					45			
Arg	Lys	Asp	Glu	Asp	Gly	Gly	Val	Lys	Val	Gly	Leu	Glu	Ala	Glu	Pro
	50					55					60				
Asp	Ser	Pro	Thr	Asp	Val	Ser	Ala	Val	Ser	Thr	Pro	Val	Val	Glu	Lys
65					70					75					80
Lys	Leu	Val	Pro	Pro	Ala	Met	Ser	Ser	Thr	Gln	Pro	Leu	Trp	Leu	Thr
				85					90					95	
Gln	Asp	His	Pro	Val	Thr	Asp	Leu	Ser	Gly	Phe	Ala	Pro	Lys	Ile	Val
			100					105					110		
Val	Val	Gly	Val	Gly	Gly	Ala	Gly	Gly	Asn	Ala	Val	Asn	Asn	Met	Ile
		115					120					125			
Ala	Arg	Gly	Leu	Gln	Gly	Val	Glu	Phe	Leu	Val	Cys	Asn	Thr	Asp	Ala
	130					135					140				

Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro
 145 150 155 160
 Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg
 165 170 175
 Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val Gln Gly
 180 185 190
 Ala Asn Met Met Phe Val Thr Ala Gly Met Gly Gly Gly Thr Gly Thr
 195 200 205
 Gly Ala Ala Pro Val Ile Ala Gln Ala Ala Leu Asp Ala Gly Ile Leu
 210 215 220
 Thr Val Ala Val Val Thr Lys Pro Phe Arg Phe Glu Gly Asn Asn Arg
 225 230 235 240
 Ala Lys Leu Ala Ala Gln Gly Leu Ala Glu Leu Lys Asp Ser Val Asp
 245 250 255
 Thr Met Leu Val Ile Pro Asn Gln Asn Leu Phe Asn Met Ser Asn Glu
 260 265 270
 Arg Thr Ser Leu Met Asp Ala Phe Arg Met Ala Asp Asn Val Leu Leu
 275 280 285
 Asp Gly Val Lys Asn Ile Ser Asp Leu Met Val Met Pro Gly Leu Ile
 290 295 300
 Asn Leu Asp Phe Ala Asp Val Gln Ser Val Met Gln Asn Met Gly Asn
 305 310 315 320
 Ala Met Met Gly Ser Gly Glu Ala Asp Gly Glu Asn Arg Ala Leu Arg
 325 330 335
 Ala Ala Glu Asp Ala Leu Ala Asn Pro Leu Leu Gly Asp Ile Ser Ile
 340 345 350
 Lys Asp Ala Lys Gly Met Ile Val Asn Ile Thr Gly Gly Ser Asp Leu
 355 360 365
 Thr Leu Phe Glu Val Asp Glu Ala Ala Glu Arg Val Thr Arg Glu Leu
 370 375 380
 Asp Asp Pro His Ala Asn Ile Ile Phe Gly Ser Thr Phe Asp Asp Ser
 385 390 395 400
 Leu Gly Gly Lys Leu Arg Val Ser Val Val Ala Thr Gly Ile Ala Asp
 405 410 415
 Pro Asp Lys Leu
 420

<210> 11
 <211> 583
 <212> PRT
 <213> Agrobacterium tumefaciens

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 20 25 30
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 35 40 45
 Asp Ala Gln Ala Leu Thr Met Thr Lys Ala Asp Arg Val Ile Gln Leu
 50 55 60
 Gly Val Asn Val Thr Glu Gly Leu Gly Ala Gly Ser Gln Pro Glu Val
 65 70 75 80
 Gly Arg Ala Ala Ala Glu Glu Cys Ile Asp Glu Ile Ile Asp His Leu
 85 90 95
 Asn Gly Thr His Met Cys Phe Val Thr Ala Gly Met Gly Gly Gly Thr

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

Pro Ser Ser Ser Ser His His Asp Asp Asp Gln Leu Glu Ile Pro Ala
565 570 575
Phe Leu Arg Arg Gln Ser Asn
580

<210> 12
<211> 590
<212> PRT
<213> Sinorhizobium meliloti

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Met Ala Ile Asn Leu Gln Lys Pro Asp Ile Thr Glu Leu Lys Pro Arg
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Ile Thr Val Phe Gly Val Gly Gly Gly Gly Gly Asn Ala Val Asn Asn
20 25 30
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35 40 45
Asp Ala Gln Ala Leu Thr Met Thr Lys Ala Glu Arg Ile Ile Gln Met
50 55 60
Gly Val Ala Val Thr Glu Gly Leu Gly Ala Gly Ser Gln Pro Glu Val
65 70 75 80
Gly Arg Ala Ala Ala Glu Glu Cys Ile Asp Glu Ile Ile Asp His Leu
85 90 95
Gln Gly Thr His Met Cys Phe Val Thr Ala Gly Met Gly Gly Gly Thr
100 105 110
Gly Thr Gly Ala Ala Pro Ile Val Ala Gln Ala Ala Arg Asn Lys Gly
115 120 125
Ile Leu Thr Val Gly Val Val Thr Lys Pro Phe His Phe Glu Gly Gly
130 135 140
Arg Arg Met Arg Ile Ala Asp Gln Gly Ile Ser Asp Leu Gln Lys Ser
145 150 155 160
Val Asp Thr Leu Ile Val Ile Pro Asn Gln Asn Leu Phe Arg Ile Ala
165 170 175
Asn Asp Lys Thr Thr Phe Ala Asp Ala Phe Ala Met Ala Asp Gln Val
180 185 190
Leu Tyr Ser Gly Val Ala Cys Ile Thr Asp Leu Met Val Lys Glu Gly
195 200 205
Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Ser Val Met Arg Glu Met
210 215 220
Gly Arg Ala Met Met Gly Thr Gly Glu Ala Ser Gly Glu Gly Arg Ala
225 230 235 240
Met Ala Ala Ala Glu Ala Ala Ile Ala Asn Pro Leu Leu Asp Glu Thr
245 250 255
Ser Met Lys Gly Ala Gln Gly Leu Leu Ile Ser Ile Thr Gly Gly Arg
260 265 270
Asp Leu Thr Leu Phe Glu Val Asp Glu Ala Ala Thr Arg Ile Arg Glu
275 280 285
Glu Val Asp Pro Asp Ala Asn Ile Ile Leu Gly Ala Thr Phe Asp Glu
290 295 300
Glu Leu Glu Gly Leu Ile Arg Val Ser Val Val Ala Thr Gly Ile Asp
305 310 315 320
Arg Thr Ala Ala Glu Val Ala Gly Arg Ser Ala Asp Phe Arg Pro Val
325 330 335
Ala Pro Lys Pro Ile Val Arg Pro Ser Ala Ala Val Pro Ala Gln Pro
340 345 350
Gln Pro Thr Val Ser Leu Gln Pro Val Pro Gln Pro Gln Pro Val Gln

Val	Asp	Thr	Leu	Ile	Val	Ile	Pro	Asn	Gln	Asn	Leu	Phe	Arg	Ile	Ala
				165					170					175	
Asn	Glu	Lys	Thr	Thr	Phe	Ser	Asp	Ala	Phe	Ala	Met	Ala	Asp	Gln	Val
			180					185					190		
Leu	Tyr	Ser	Gly	Val	Ala	Ser	Ile	Thr	Asp	Leu	Met	Ile	Lys	Glu	Gly
		195					200					205			
Leu	Ile	Asn	Leu	Asp	Phe	Ala	Asp	Val	Arg	Ser	Val	Met	His	Glu	Met
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Gly	Arg	Ala	Met	Met	Gly	Thr	Gly	Glu	Ala	Ser	Gly	Asp	Gly	Arg	Ala
225					230					235					240
Leu	Ala	Ala	Ala	Glu	Ala	Ala	Ile	Ala	Asn	Pro	Leu	Leu	Asp	Asp	Thr
				245					250					255	
Ser	Met	Arg	Gly	Ala	Arg	Gly	Leu	Leu	Ile	Ser	Ile	Thr	Gly	Gly	Arg
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Asp	Met	Thr	Leu	Phe	Glu	Val	Asp	Glu	Ala	Ala	Asn	Arg	Ile	Arg	Glu
		275					280					285			
Glu	Val	Asp	Ala	Asp	Ala	Asn	Val	Ile	Phe	Gly	Ala	Ile	Asp	Asp	Glu
	290					295					300				
Ser	Leu	Glu	Gly	Val	Ile	Arg	Val	Ser	Val	Val	Ala	Thr	Gly	Ile	Asp
305					310					315					320
Arg	Glu	Ile	Asn	Asp	Val	Ile	Gln	Pro	Ser	Asn	Thr	Lys	Phe	His	Arg
			325						330					335	
Ser	Ala	Thr	Ser	Met	Arg	Lys	Asn	Asp	Ala	Gly	Val	Thr	Gln	Thr	Ser
			340					345					350		
Ser	Gln	Ser	Ser	Ser	Leu	Arg	Ser	Glu	Ser	Met	Val	Glu	Val	Ile	Glu
		355					360					365			
Ala	Leu	Glu	Val	Glu	Met	Lys	Gln	Pro	Ile	Glu	Glu	Pro	Phe	Cys	Pro
	370					375					380				
Lys	Ser	Gln	Phe	Phe	Val	Gln	Ser	Thr	Asp	Thr	Tyr	Thr	Pro	Arg	Ser
385					390					395					400
Met	Asn	Ala	Ala	Ser	Tyr	Gly	Gln	Asn	Ile	His	Gly	Gln	Thr	Ser	Asn
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Ala	Leu	Arg	Met	Gln	Val	Gly	Cys	Val	Ser	Gln	Gln	Pro	Val	Ala	Lys
			420					425					430		
Ala	Val	Asn	Met	Glu	Ala	Thr	Ala	His	Val	Leu	Asp	Asp	Met	Thr	Arg
		435					440					445			
Ile	Val	Glu	Gln	Lys	Lys	Lys	Gln	Ala	Gln	Met	Gln	Ser	His	Ser	Met
	450					455					460				
Ser	Met	Arg	Met	Pro	Glu	Leu	Lys	Asp	Phe	Pro	Ser	Ser	Ile	Arg	Gly
465					470					475					480
Gln	Ser	Thr	Asn	Phe	Ser	Asn	Ala	Asp	Gln	Gly	Pro	Arg	Asn	Leu	Trp
			485						490					495	
Gln	Arg	Leu	Lys	Gln	Ser	Leu	Thr	Tyr	Arg	Glu	Glu	Ala	Glu	Pro	Glu
			500					505					510		
Ala	Arg	Leu	Glu	Pro	Ala	Val	Asn	Ser	Ser	Leu	Cys	Lys	Asp	Ser	His
		515					520					525			
Ile	Ser	Ser	Ala	Ser	Ser	Gln	Gly	Ile	Ser	Gln	Asp	Thr	Ser	Val	Tyr
	530					535					540				
Ile	Pro	Arg	His	Ser	Thr	Glu	Leu	Gln	Gln	His	Ala	Ser	Gln	Asp	Gln
545					550					555					560
Asn	Val	Cys	Val	Ser	Glu	Glu	Asp	Glu	Leu	Glu	Ile	Pro	Ala	Phe	Leu
				565					570					575	
Arg	Arg	Gln	Ala	Asn											
			580												

<210> 14

<211> 452
 <212> PRT
 <213> Rickettsia prowazekii

<400> 14
 Met Val Leu Asn Ile Lys Ala Pro Glu Asn Ile Val Leu Lys Pro Thr
 1 5 10 15
 Ile Thr Val Phe Gly Val Gly Gly Ala Gly Ser Asn Ala Val Asn Asn
 20 25 30
 Met Ile His Ala Asn Leu Gln Gly Ala Asn Phe Val Val Ala Asn Thr
 35 40 45
 Asp Ala Gln Ser Leu Glu His Ser Leu Cys Ile Asn Lys Ile Gln Leu
 50 55 60
 Gly Val Ser Thr Thr Arg Gly Leu Gly Ala Gly Ala Ser Pro Glu Val
 65 70 75 80
 Gly Ala Leu Ala Ala Gln Glu Ser Glu Asn Glu Ile Arg Ser Ser Leu
 85 90 95
 Glu Asn Ser Asn Met Val Phe Ile Thr Ala Gly Met Gly Gly Gly Thr
 100 105 110
 Gly Thr Gly Ser Ala Pro Ile Ile Ala Arg Ile Ala Lys Glu Leu Gly
 115 120 125
 Ile Leu Thr Val Gly Val Val Thr Lys Pro Phe His Phe Glu Gly Gly
 130 135 140
 His Arg Met Lys Thr Ala Asp Lys Gly Leu Ile Glu Leu Gln Gln Phe
 145 150 155 160
 Val Asp Thr Leu Ile Val Ile Pro Asn Gln Asn Leu Phe Arg Ile Ala
 165 170 175
 Asn Glu Gln Thr Thr Phe Ala Asp Ala Phe Lys Met Ala Asp Asp Val
 180 185 190
 Leu His Ala Gly Val Arg Gly Val Thr Asp Leu Met Ile Met Pro Gly
 195 200 205
 Leu Ile Asn Leu Asp Phe Ala Asp Ile Lys Ala Val Met Ser Glu Met
 210 215 220
 Gly Lys Ala Met Met Gly Thr Gly Glu Asp Ser Gly Glu Asp Arg Ala
 225 230 235 240
 Ile Lys Ala Ala Glu Ser Ala Ile Ser Asn Pro Leu Leu Asp His Ser
 245 250 255
 Ser Met Cys Gly Ala Arg Gly Val Leu Ile Asn Ile Thr Gly Gly Pro
 260 265 270
 Asp Met Thr Leu Phe Glu Val Asp Asn Ala Ala Asn Arg Ile Arg Glu
 275 280 285
 Glu Val Asp Asn Ile Asp Ala Asn Ile Ile Phe Gly Ser Thr Phe Asn
 290 295 300
 Pro Glu Leu Lys Gly Ile Ile Arg Val Ser Val Val Ala Thr Gly Ile
 305 310 315 320
 Asp Ala Asp Lys Val Pro Lys Tyr Lys Leu Ala Ile Asp Lys Asn Thr
 325 330 335
 Asn Thr Leu Pro Glu Glu Thr Tyr Asn Glu Ser Ile Ile Gln His Thr
 340 345 350
 Gln Ile Glu Thr Ile Pro Ser Phe Asn Ser Tyr Ser Thr Glu Asn Ile
 355 360 365
 Glu Ile Asn Glu Ser Ser Ile Lys Gln Asp Tyr Thr Gly Asn Glu Gln
 370 375 380
 Glu Leu Arg Leu His Val Asn Ala Val Asn Lys Pro Glu Asn Asn Ser
 385 390 395 400
 Gln Lys Ser Ser Phe Leu Gly Lys Ile Trp Glu Ser Leu Arg Thr Ser
 405 410 415

Asn Asn Gln Thr Leu Glu Arg Lys Asn Val Ile Val Asn Thr Val Asp
 420 425 430
 Gln Asp Asn Lys Glu Ser Asp Ile His Asp Ile Pro Ala Phe Leu Arg
 435 440 445
 Lys Lys Arg Asp
 450

<210> 15
 <211> 508
 <212> PRT
 <213> *Caulobacter crescentus*

<400> 15
 Met Ala Ile Ser Leu Ser Ala Pro Arg Thr Thr Glu Leu Lys Pro Arg
 1 5 10 15
 Ile Val Val Phe Gly Val Gly Gly Ala Gly Gly Asn Ala Val Asn Asn
 20 25 30
 Met Ile Glu Ala Gly Leu Glu Gly Val Glu Phe Val Val Ala Asn Thr
 35 40 45
 Asp Ala Gln Gln Leu Gln Phe Ala Lys Thr Asp Arg Arg Ile Gln Leu
 50 55 60
 Gly Val Gln Ile Thr Gln Gly Leu Gly Ala Gly Ala His Pro Glu Val
 65 70 75 80
 Gly Met Ser Ala Ala Glu Glu Ser Phe Pro Glu Ile Gly Glu His Leu
 85 90 95
 Asp Gly Ala His Met Val Phe Ile Thr Ala Gly Met Gly Gly Gly Thr
 100 105 110
 Gly Thr Gly Ala Ala Pro Ile Ile Ala Lys Cys Ala Arg Glu Arg Gly
 115 120 125
 Ile Leu Thr Val Gly Val Val Thr Lys Pro Phe His Phe Glu Gly Arg
 130 135 140
 His Arg Met Arg Leu Ala Asp Ser Gly Ile Gln Glu Leu Gln Arg Tyr
 145 150 155 160
 Val Asp Thr Leu Ile Val Ile Pro Asn Gln Asn Leu Phe Arg Val Ala
 165 170 175
 Asn Glu Arg Thr Thr Phe Ala Glu Ala Phe Gly Met Ala Asp Gln Val
 180 185 190
 Leu His Ser Gly Val Arg Ser Ile Thr Asp Leu Met Val Leu Pro Gly
 195 200 205
 Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Thr Val Met Thr Glu Met
 210 215 220
 Gly Lys Ala Met Met Gly Thr Gly Glu Gly Thr Ala Glu Asp Arg Ala
 225 230 235 240
 Leu Met Ala Ala Gln Asn Ala Ile Ala Asn Pro Leu Leu Asp Glu Val
 245 250 255
 Ser Leu Lys Gly Ala Lys Ala Val Leu Val Asn Val Thr Gly Gly Met
 260 265 270
 Asp Met Thr Leu Leu Glu Val Asp Glu Ala Ala Asn Ala Ile Ser Asp
 275 280 285
 Gln Val Asp Pro Glu Ala Asn Ile Ile Phe Gly Ala Ala Phe Asp Pro
 290 295 300
 Ser Leu Glu Gly Val Ile Arg Val Ser Val Val Ala Thr Gly Met Asp
 305 310 315 320
 Gly Ala Ser Ile Ala Gln Ile Glu Pro Lys Pro Val Ser Arg Asn Ile
 325 330 335
 Ser Ala Ala Pro Leu Ile Ala Glu Thr Ser Arg Pro Ala Pro Gln Pro

			340				345				350					
Glu	Pro	Ala	Arg	Pro	Thr	Ala	Arg	Tyr	Glu	Ala	Ala	Arg	Pro	Ala	Glu	Pro
			355				360				365					
Arg	Pro	Val	Ala	Phe	Ala	Pro	Glu	Pro	Ala	Pro	Glu	Pro	Glu	Ile	Val	Pro
			370				375				380					
Met	Ser	Ala	Pro	Gln	Pro	Glu	Pro	Glu	Ala	Glu	Leu	Tyr	Tyr	Asp	Glu	Pro
			385				390				395					
Pro	Thr	Val	Ala	Glu	Glu	Pro	Arg	Val	Ser	Ala	Ala	Pro	Ala	Arg	Ser	Pro
			405				410				415					
Val	Asn	Arg	Ile	Val	Asp	Pro	Leu	Val	Asp	Asp	Val	Ala	Glu	Glu	Pro	Pro
			420				425				430					
Leu	Phe	Pro	Glu	Asn	Asn	Tyr	Tyr	Glu	Glu	Arg	Arg	Pro	Gln	Lys	Gln	Pro
			435				440				445					
Gly	Gly	Phe	Phe	Ser	Met	Phe	Gly	Gly	Gly	Arg	Gln	Arg	Tyr	Glu	Gln	Pro
			450				455				460					
Gln	Ala	Ser	Ala	Pro	Gln	Ala	Gln	Ala	Arg	Ser	Ala	Gln	Ser	Ala	Arg	Pro
			465				470				475					
Pro	Gln	Leu	Gln	Pro	Ile	Glu	Thr	Pro	Gln	Ala	Asp	Asp	Ala	Glu	Asp	Pro
			485				490				495					
Leu	Glu	Ile	Pro	Ser	Phe	Leu	Arg	Arg	Leu	Ala	Asn					
			500				505									

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<210> 16
<211> 407
<212> PRT
<213> Cyanidioschyzon merolae
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Met	Thr	Gly	Ala	Leu	Arg	Tyr	Arg	Ala	Leu	Ala	Arg	Val	Ile	Glu	Arg
1				5					10					15	
Cys	Leu	Gly	Ser	Arg	Ala	Leu	Gly	Glu	Ser	Gly	Ser	Ala	Ala	Ala	Val
			20					25					30		
Ser	Asn	Tyr	Val	Trp	Gln	Arg	Glu	Ala	Ser	Arg	Gly	Phe	Val	Leu	Gly
		35					40					45			
Thr	Arg	Leu	Leu	Pro	Trp	Cys	Pro	Leu	Gly	Ser	Arg	Leu	Leu	His	Ser
	50					55					60				
Pro	Ser	Gln	Thr	Ala	Ser	Val	Ile	Arg	Met	Asn	Thr	Gly	Ser	Phe	Ala
65					70					75					80
Pro	Lys	Pro	Asp	Leu	Gly	Glu	Gln	Gln	Pro	Asn	Thr	Leu	Thr	Gly	Gln
			85						90					95	
Pro	Arg	Ile	Met	Val	Val	Gly	Val	Gly	Gly	Ala	Gly	Gly	Asn	Ala	Val
			100					105					110		
Asn	Asn	Met	Ile	Ala	Ser	Ser	Leu	Pro	Gly	Val	Glu	Phe	Leu	Val	Ala
	115						120					125			
Asn	Thr	Asp	Ala	Gln	Ala	Leu	Lys	Met	Ser	Leu	Cys	Pro	Asn	Arg	Ile
	130					135					140				
Gln	Leu	Gly	Ala	Ser	Leu	Thr	Glu	Gly	Leu	Gly	Ala	Gly	Ala	Arg	Pro
145					150					155					160
Asp	Ile	Gly	Arg	Ala	Ala	Ala	Glu	Glu	Ala	Tyr	Glu	Thr	Leu	Lys	Arg
			165						170					175	
Glu	Phe	Arg	Gly	Val	His	Leu	Leu	Phe	Val	Thr	Ala	Gly	Met	Gly	Gly
			180					185					190		
Gly	Thr	Gly	Thr	Gly	Ala	Ala	Pro	Ile	Ile	Ala	Arg	Ala	Ala	Ala	Glu
	195						200					205			
Leu	Gly	Cys	Leu	Thr	Val	Ala	Val	Val	Thr	Lys	Pro	Phe	His	Phe	Glu
	210					215					220				

Gly Met Ile Arg Met Lys Thr Ala Glu Gln Gly Ile Val Glu Leu Thr
 225 230 235 240
 Glu His Val Asp Thr Met Leu Val Ile Pro Asn Gln Asn Leu Phe Lys
 245 250 255
 Val Ala Ser Pro Arg Thr Ser Phe Leu Asp Ala Phe Arg Leu Ala Asp
 260 265 270
 His Val Leu Tyr Ser Gly Val Arg Ser Ile Thr Asp Leu Met Thr Val
 275 280 285
 Pro Gly Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Ser Val Val Arg
 290 295 300
 Glu Met Gly Arg Ala Met Met Gly Ser Gly Glu Val Glu Met Glu Ala
 305 310 315 320
 Gly Asn Glu Glu Arg Ala Ile Arg Ala Ser Glu Ala Ala Ile Cys Asn
 325 330 335
 Pro Leu Leu Asp Glu Thr Ser Leu Arg Gly Ala Arg Gly Val Leu Val
 340 345 350
 Asn Ile Thr Gly Gly Thr Asp Met Thr Leu Phe Glu Ile Asp Ala Ala
 355 360 365
 Ala Asn Arg Ile Arg Glu Gln Val Asp Pro Asp Ala Asn Ile Ile Phe
 370 375 380
 Gly Ser Ala Phe Asp Ala Ser Met Gln Gly Arg Leu Arg Val Ser Val
 385 390 395 400
 Leu Ala Thr Gly Ile Pro Ser
 405

<210> 17

<211> 401

<212> PRT

<213> Mallomonas splendens

<400> 17

Met Arg Ile Thr Gly Ala Asn Arg Ile Leu Ser Leu Ser Arg Ile Arg
 1 5 10 15
 His Phe Ser Asp Gly Ala Ser Leu Asn Lys Ala Phe Leu Arg Ser Val
 20 25 30
 Lys Pro Gly Val Lys Pro Glu Gln Tyr Asp Ser Arg Ser Gly Asn Ser
 35 40 45
 Ser Gln Ala Gln Ser Thr Glu His Val Lys Asp Lys Phe Val Glu Pro
 50 55 60
 Gly Asn Leu Arg Phe Arg Thr Gly Glu Tyr Ile Thr Glu Phe Leu Pro
 65 70 75 80
 Lys Ile Cys Val Phe Gly Val Gly Gly Gly Gly Cys Asn Ala Val Asn
 85 90 95
 Asn Met Ile Ala Arg Lys Leu Ser Gly Val Glu Phe Val Cys Ala Asn
 100 105 110
 Thr Asp Ala Gln His Leu Ser Thr Cys Leu Thr Glu Asn Lys Leu Gln
 115 120 125
 Leu Gly Lys Glu Ser Thr Gln Gly Leu Gly Cys Gly Ala Asn Pro Glu
 130 135 140
 Ser Gly Arg Arg Ala Ala Glu Glu Ser Lys Glu Glu Ile Ala Arg Tyr
 145 150 155 160
 Ile Ala Asp Ala Asn Met Val Phe Ile Thr Ala Gly Met Gly Gly Gly
 165 170 175
 Thr Gly Thr Gly Ala Ala Pro Val Val Ala Glu Val Cys Met Glu Lys
 180 185 190
 Asp Ile Leu Thr Val Ala Val Val Thr Lys Pro Phe Ser Phe Glu Gly

Leu Thr Arg Gly Leu Gly Ala Gly Gly Asn Pro Asp Ile Gly Met Asn
 180 185 190
 Ala Ala Lys Glu Ser Lys Glu Ala Ile Glu Glu Ala Val Tyr Gly Ala
 195 200 205
 Asp Met Val Phe Val Thr Ala Gly Met Gly Gly Gly Thr Gly Thr Gly
 210 215 220
 Gly Ala Pro Val Ile Ala Gly Ile Ala Lys Ser Met Gly Ile Leu Thr
 225 230 235 240
 Val Gly Ile Val Thr Thr Pro Phe Ser Phe Glu Gly Arg Arg Arg Ala
 245 250 255
 Val Gln Ala Gln Glu Gly Ile Ala Ala Leu Arg Asp Asn Val Asp Thr
 260 265 270
 Leu Ile Val Ile Pro Asn Asp Lys Leu Leu Thr Ala Val Ser Pro Ser
 275 280 285
 Thr Pro Val Thr Glu Ala Phe Asn Leu Ala Asp Asp Ile Leu Arg Gln
 290 295 300
 Gly Val Arg Gly Ile Ser Asp Ile Ile Thr Ile Pro Gly Leu Val Asn
 305 310 315 320
 Val Asp Phe Ala Asp Val Arg Ala Ile Met Ala Asn Ala Gly Ser Ser
 325 330 335
 Leu Met Gly Ile Gly Thr Ala Thr Gly Lys Thr Arg Ala Arg Asp Ala
 340 345 350
 Ala Leu Asn Ala Ile Gln Ser Pro Leu Leu Asp Ile Gly Ile Glu Arg
 355 360 365
 Ala Thr Gly Ile Val Trp Asn Ile Thr Gly Gly Ser Asp Leu Thr Leu
 370 375 380
 Phe Glu Val Asn Ala Ala Ala Glu Val Ile Tyr Asp Leu Val Asp Pro
 385 390 395 400
 Ser Ala Asn Leu Ile Phe Gly Ala Val Val Asp Pro Ser Leu Cys Gly
 405 410 415
 Gln Val Ser Ile Thr Leu Ile Ala Thr Gly Phe Lys Arg Gln Glu Glu
 420 425 430
 Ser Asp Lys Arg Ser Ile Gln Ala Gly Gly Gln Leu Ala Pro Gly Asp
 435 440 445
 Ala Asn Gln Gly Ile Asn Arg Arg Pro Ser Ser Phe Ser Glu Ser Gly
 450 455 460
 Ser Val Glu Ile Pro Glu Phe Leu Arg Lys Lys Gly Arg Ser Arg Tyr
 465 470 475 480
 Pro Arg Ala

<210> 19

<211> 468

<212> PRT

<213> Nicotiana tabacum

<400> 19

Met Ala Thr Cys Thr Ser Ala Val Phe Met Pro Pro Asp Thr Arg Arg
 1 5 10 15
 Ser Arg Gly Val Leu Thr Leu Leu Gly Gly Arg Leu Cys Ala Leu Lys
 20 25 30
 Met Gln Asp Glu Lys Ile Gly Phe Leu Gly Val Asn Gln Lys Gly Ser
 35 40 45
 Ser Ser Leu Pro Gln Phe Lys Cys Ser Ser Asn Ser His Ser Val Asn
 50 55 60
 Gln Tyr Gln Asn Lys Asp Ser Phe Leu Asn Leu His Pro Glu Ile Ser

65					70				75				80			
Leu	Leu	Arg	Gly	Glu	Glu	Ser	Ser	Ser	Gly	Asn	Val	Thr	Glu	Ser	Leu	
				85					90					95		
Met	Asp	Ser	Ser	Arg	Ser	Asn	Asn	Phe	Asn	Glu	Ala	Lys	Ile	Lys	Val	
			100					105					110			
Val	Gly	Val	Gly	Gly	Gly	Gly	Ser	Asn	Ala	Val	Asn	Arg	Met	Ile	Glu	
			115				120					125				
Ser	Ser	Met	Lys	Gly	Val	Glu	Phe	Trp	Ile	Val	Asn	Thr	Asp	Ile	Gln	
	130					135					140					
Ala	Met	Arg	Met	Ser	Pro	Val	Ala	Ala	Glu	Gln	Arg	Leu	Pro	Ile	Gly	
145					150					155				160		
Gln	Glu	Leu	Thr	Arg	Gly	Leu	Gly	Ala	Gly	Gly	Asn	Pro	Asp	Ile	Gly	
				165					170					175		
Met	Asn	Ala	Ala	Asn	Glu	Ser	Lys	Gln	Ala	Ile	Glu	Glu	Ala	Val	Tyr	
			180					185					190			
Gly	Ala	Asp	Met	Val	Phe	Val	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr	Gly	
		195					200					205				
Thr	Gly	Ala	Ala	Pro	Ile	Ile	Ala	Gly	Thr	Ala	Lys	Ser	Met	Gly	Ile	
	210					215					220					
Leu	Thr	Val	Gly	Ile	Val	Thr	Thr	Pro	Phe	Ser	Phe	Glu	Gly	Arg	Arg	
225					230					235				240		
Arg	Ala	Val	Gln	Ala	Gln	Glu	Gly	Ile	Ala	Ala	Leu	Arg	Glu	Asn	Val	
				245					250					255		
Asp	Thr	Leu	Ile	Val	Ile	Pro	Asn	Asp	Lys	Leu	Leu	Thr	Ala	Val	Ser	
			260					265					270			
Pro	Ser	Thr	Pro	Val	Thr	Glu	Ala	Phe	Asn	Leu	Ala	Asp	Asp	Ile	Leu	
		275					280					285				
Arg	Gln	Gly	Val	Arg	Gly	Ile	Ser	Asp	Ile	Ile	Thr	Ile	Pro	Gly	Leu	
	290					295					300					
Val	Asn	Val	Asp	Phe	Ala	Asp	Val	Arg	Ala	Ile	Met	Ala	Asn	Ala	Gly	
305				310						315				320		
Ser	Ser	Leu	Met	Gly	Ile	Gly	Thr	Ala	Thr	Gly	Lys	Thr	Arg	Ala	Arg	
				325					330					335		
Asp	Ala	Ala	Leu	Asn	Ala	Ile	Gln	Ser	Pro	Leu	Leu	Asp	Ile	Gly	Ile	
			340					345				350				
Glu	Arg	Ala	Thr	Gly	Ile	Val	Trp	Asn	Ile	Thr	Gly	Gly	Ser	Asp	Leu	
		355					360					365				
Thr	Leu	Phe	Glu	Val	Asn	Ala	Ala	Ala	Glu	Val	Ile	Tyr	Asp	Leu	Val	
	370					375					380					
Asp	Pro	Ser	Ala	Asn	Leu	Ile	Phe	Gly	Ala	Val	Ile	Asp	Pro	Ser	Ile	
385				390					395					400		
Ser	Gly	Gln	Val	Ser	Ile	Thr	Leu	Ile	Ala	Thr	Gly	Phe	Lys	Arg	Gln	
				405					410					415		
Glu	Glu	Ser	Asp	Gly	Arg	Pro	Leu	Gln	Gly	Asn	Gln	Leu	Thr	Gln	Gly	
			420					425								

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<210> 20
<211> 397
<212> PRT
<213> Arabidopsis thaliana
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0009

<400> 20

Met 1	Leu	Arg	Gly	Glu	Gly	Thr	Ser	Thr	Ile	Val	Asn	Pro	Arg	Lys	Glu
Thr	Ser	Ser	Gly	Pro	Val	Val	Glu	Asp	Phe	Glu	Glu	Pro	Ser	Ala	Pro
Ser	Asn	Tyr	Asn	Glu	Ala	Arg	Ile	Lys	Val	Ile	Gly	Val	Gly	Gly	Gly
Gly	Ser	Asn	Ala	Val	Asn	Arg	Met	Ile	Glu	Ser	Glu	Met	Ser	Gly	Val
Glu	Phe	Trp	Ile	Val	Asn	Thr	Asp	Ile	Gln	Ala	Met	Arg	Met	Ser	Pro
65	Val	Leu	Pro	Asp	Asn	Arg	Leu	Gln	Ile	Gly	Lys	Glu	Leu	Thr	Arg
Val	Gly	Ala	Gly	Gly	Asn	Pro	Glu	Ile	Gly	Met	Asn	Ala	Ala	Arg	Glu
Leu	Lys	Glu	Val	Ile	Glu	Glu	Ala	Leu	Tyr	Gly	Ser	Asp	Met	Val	Phe
Val	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr	Gly	Thr	Gly	Ala	Ala	Pro	Val
Ile	Ala	Gly	Ile	Ala	Lys	Ala	Met	Gly	Ile	Leu	Thr	Val	Gly	Ile	Ala
145	Thr	Thr	Pro	Phe	Ser	Phe	Glu	Gly	Arg	Arg	Thr	Val	Gln	Ala	Gln
Thr	Gly	Leu	Ala	Ser	Leu	Arg	Asp	Asn	Val	Asp	Thr	Leu	Ile	Val	Ile
Glu	Gly	Leu	Ala	Ser	Leu	Arg	Asp	Asn	Val	Asp	Thr	Leu	Ile	Val	Ile
Pro	Asn	Asp	Lys	Leu	Leu	Thr	Ala	Val	Ser	Gln	Ser	Thr	Pro	Val	Thr
Glu	Ala	Phe	Asn	Leu	Ala	Asp	Asp	Ile	Leu	Arg	Gln	Gly	Val	Arg	Gly
Ile	Ser	Asp	Ile	Ile	Thr	Ile	Pro	Gly	Leu	Val	Asn	Val	Asp	Phe	Ala
225	Asp	Val	Arg	Ala	Ile	Met	Ala	Asn	Ala	Gly	Ser	Ser	Leu	Met	Gly
Asp	Val	Arg	Ala	Ile	Met	Ala	Asn	Ala	Gly	Ser	Ser	Leu	Met	Gly	Ile
Gly	Thr	Ala	Thr	Gly	Lys	Ser	Arg	Ala	Arg	Asp	Ala	Ala	Leu	Asn	Ala
Ile	Gln	Ser	Pro	Leu	Leu	Asp	Ile	Gly	Ile	Glu	Arg	Ala	Thr	Gly	Ile
Val	Trp	Asn	Ile	Thr	Gly	Gly	Ser	Asp	Leu	Thr	Leu	Phe	Glu	Val	Asn
Ala	Ala	Ala	Glu	Val	Ile	Tyr	Asp	Leu	Val	Asp	Pro	Thr	Ala	Asn	Leu
305	Ile	Phe	Gly	Ala	Val	Val	Asp	Pro	Ala	Leu	Ser	Gly	Gln	Val	Ser
Ile	Phe	Gly	Ala	Val	Val	Asp	Pro	Ala	Leu	Ser	Gly	Gln	Val	Ser	Ile
Thr	Leu	Ile	Ala	Thr	Gly	Phe	Lys	Arg	Gln	Glu	Glu	Gly	Glu	Gly	Arg
Thr	Val	Gln	Met	Val	Gln	Ala	Asp	Ala	Ala	Ser	Val	Gly	Ala	Thr	Arg
Arg	Pro	Ser	Ser	Ser	Phe	Arg	Glu	Ser	Gly	Ser	Val	Glu	Ile	Pro	Glu
Phe	Leu	Lys	Lys	Lys	Gly	Ser	Ser	Arg	Tyr	Pro	Arg	Val			

<210> 21

<211> 458

<212> PRT

Thr Gly Leu Ser Gln Gly Ser Asn Gly Ser Ala Ile Asn Ile Pro Ser
 435 440 445
 Phe Leu Arg Lys Arg Gly Gln Thr Arg His
 450 455

<210> 22
 <211> 464
 <212> PRT
 <213> Physcomitrella patens

<400> 22
 Met Ala Leu Leu Gly Ser Arg Ser Gly Leu Val Gly Leu Arg Val Ser
 1 5 10 15
 Ser Arg Val Gly Gly Glu Ser Ser Arg Ile Val Pro Ala Thr Arg Asp
 20 25 30
 Arg Phe Cys Val His Leu Arg Pro Ser Thr Arg Ala His Arg Arg Leu
 35 40 45
 Asp Arg Thr Val Gly Asn Glu Ser Leu Cys Thr Pro Arg Glu Arg Asp
 50 55 60
 Leu Ala Ala Glu Pro Lys Phe Leu His Thr Gly Trp Glu Ser Ser Ser
 65 70 75 80
 Ser Ser Ser Ser Ser Ser Cys Glu Thr Gly Ile Pro Val Thr Ala Phe
 85 90 95
 Gly Gly Asn Gly Asp Glu Tyr Glu Ser Ser Asn Glu Ala Lys Ile Lys
 100 105 110
 Val Ile Gly Val Gly Gly Gly Gly Ser Asn Ala Val Asn Arg Met Leu
 115 120 125
 Glu Ser Glu Met Gln Gly Val Glu Phe Trp Ile Val Asn Thr Asp Ala
 130 135 140
 Gln Ala Met Ala Leu Ser Pro Val Pro Ala Gln Asn Arg Leu Gln Ile
 145 150 155 160
 Gly Gln Lys Leu Thr Arg Gly Leu Gly Ala Gly Gly Asn Pro Glu Ile
 165 170 175
 Gly Cys Ser Ala Ala Glu Glu Ser Lys Ala Met Val Glu Glu Ala Leu
 180 185 190
 Arg Gly Ala Asp Met Val Phe Val Thr Ala Gly Met Gly Gly Gly Thr
 195 200 205
 Gly Ser Gly Ala Ala Pro Ile Ile Ala Gly Val Ala Lys Gln Leu Gly
 210 215 220
 Ile Leu Thr Val Gly Ile Val Thr Thr Pro Phe Ala Phe Glu Gly Arg
 225 230 235 240
 Arg Arg Ser Val Gln Ala His Glu Gly Ile Ala Ala Leu Lys Asn Asn
 245 250 255
 Val Asp Thr Leu Ile Thr Ile Pro Asn Asn Lys Leu Leu Thr Ala Val
 260 265 270
 Ala Gln Ser Thr Pro Val Thr Glu Ala Phe Asn Leu Ala Asp Asp Ile
 275 280 285
 Leu Arg Gln Gly Val Arg Gly Ile Ser Asp Ile Ile Thr Val Pro Gly
 290 295 300
 Leu Val Asn Val Asp Phe Ala Asp Val Arg Ala Ile Met Ala Asn Ala
 305 310 315 320
 Gly Ser Ser Leu Met Gly Ile Gly Thr Ala Thr Gly Lys Ser Lys Ala
 325 330 335
 Arg Glu Ala Ala Leu Ser Ala Ile Gln Ser Pro Leu Leu Asp Val Gly
 340 345 350
 Ile Glu Arg Ala Thr Gly Ile Val Trp Asn Ile Thr Gly Gly Ser Asp

355	360	365
Met Thr Leu Phe Glu Val	Asn Ala Ala Ala Glu Val	Ile Tyr Asp Leu
370	375	380
Val Asp Pro Asn Ala Asn	Leu Ile Phe Gly Ala Val	Val Asp Glu Ala
385	390	395
Leu His Asp Gln Ile Ser	Ile Thr Leu Ile Ala Thr	Gly Phe Ser Ser
405	410	415
Gln Asp Asp Pro Asp Ala	Arg Ser Met Gln Tyr Ala	Ser Arg Val Leu
420	425	430
Glu Gly Gln Ala Gly Arg	Ser Ser Met Ala Ser Ser	Arg Gly Gly Asn
435	440	445
Ser Ser Thr Ile Asn Ile	Pro Asn Phe Leu Arg Lys	Arg Gly Gln Arg
450	455	460

<210> 23
 <211> 398
 <212> PRT
 <213> Guillardia theta

<400> 23

Met Tyr Phe Ile Gln Asn	Ile Lys Cys Tyr Gln Phe	Asp Lys Lys Asn
1	5	10
Ile Phe Lys Thr Ile Asn	Lys Phe Arg Cys Arg Ser	Gln Ser Leu Ile
20	25	30
Lys Ser Asn Ile Ser Glu	Asp Ser Phe Phe Asn Gln	Glu Ile Ser Ser
35	40	45
Ser Pro Cys Val Ile Lys	Val Ile Gly Val Gly Gly	Gly Gly Gly Asn
50	55	60
Ala Val Asn Arg Met Val	Gly Gly Val Glu Gly Val	Glu Phe Trp Ser
65	70	75
Ile Asn Thr Asp Ala Gln	Ala Leu Ser Arg Ser Leu	Ala Pro Asn Thr
85	90	95
Cys Asn Ile Gly Ala Lys	Leu Thr Arg Gly Leu Gly	Ala Gly Gly Asn
100	105	110
Pro Glu Ile Gly Arg Lys	Ala Ala Glu Glu Ser Arg	Asp Leu Ile Ala
115	120	125
Glu Ala Val Ser Ala Gly	Asp Leu Val Phe Val Thr	Ala Gly Met Gly
130	135	140
Gly Gly Thr Gly Ser Gly	Ala Ala Pro Ile Val Ala	Glu Val Ala Lys
145	150	155
Glu Met Gly Cys Leu Thr	Val Gly Val Val Thr Lys	Pro Phe Ala Phe
165	170	175
Glu Gly Lys Arg Arg Met	Gln Gln Ala Asn Asp Ala	Ile Leu Asn Leu
180	185	190
Arg Asn Lys Val Asp Thr	Leu Ile Val Val Ser Asn	Asp Lys Leu Leu
195	200	205
Gln Ile Val Pro Asp Asn	Thr Pro Leu Gln Asp Ala	Phe Ser Val Ala
210	215	220
Asp Asp Ile Leu Arg Gln	Gly Val Val Gly Ile Ser	Glu Ile Ile Val
225	230	235
Arg Pro Gly Leu Ile Asn	Val Asp Phe Ala Asp Val	Arg Ser Val Met
245	250	255
Ala Asp Ala Gly Ser Ala	Leu Met Gly Ile Gly Thr	Gly Ser Gly Lys
260	265	270
Thr Arg Ala Gln Asp Ala	Ala Val Ala Ala Ile Ser	Ser Pro Leu Leu
275	280	285

Asp Phe Pro Ile Glu Lys Ala Arg Gly Ile Val Phe Asn Ile Thr Gly
 290 295 300
 Gly Gln Asp Met Thr Leu His Glu Ile Asn Ser Ala Ala Glu Val Ile
 305 310 315 320
 Tyr Glu Ala Val Asp Ser Asn Ala Asn Ile Ile Phe Gly Ala Leu Val
 325 330 335
 Asp Asp Asn Met Glu Asn Glu Ile Ser Ile Thr Val Val Ala Thr Gly
 340 345 350
 Phe Thr Gln Pro Asn Asp Ser Lys Phe Phe Ser Thr Lys Ser Ala Val
 355 360 365
 Asp Phe Ser Lys Ile Tyr Asp Asn Lys Lys Thr Lys Ser Thr Tyr Lys
 370 375 380
 Glu Ser Arg Ala Glu Phe Ser Asp Leu Trp Lys Lys Phe Tyr
 385 390 395

<210> 24
 <211> 368
 <212> PRT
 <213> Mallomonas splendens

<400> 24
 Gly Val Glu Leu Trp Val Val Asn Thr Asp Ala Gln Ala Leu Ser Arg
 1 5 10 15
 Ser Ser Ala Lys Arg Arg Leu Asn Ile Gly Lys Val Leu Ser Arg Gly
 20 25 30
 Leu Gly Ala Gly Gly Asn Pro Ala Ile Gly Ala Lys Ala Ala Glu Glu
 35 40 45
 Ser Arg Glu Glu Ile Met Ala Val Val Lys Asn Ala Asp Leu Val Phe
 50 55 60
 Val Thr Ala Gly Met Gly Gly Gly Thr Gly Ser Gly Ala Ala Pro Val
 65 70 75 80
 Val Ala Glu Cys Ala Lys Glu Ala Gly Ala Leu Thr Val Gly Val Val
 85 90 95
 Thr Lys Pro Phe Gly Phe Glu Gly Arg Lys Arg Met Gln Gln Ala Arg
 100 105 110
 Asn Ala Ile Leu Glu Met Lys Asp Lys Val Asp Thr Leu Ile Val Val
 115 120 125
 Ser Asn Asp Lys Leu Leu Lys Ile Val Pro Asp Asn Thr Pro Leu Thr
 130 135 140
 Glu Ala Phe Leu Val Ala Asp Asp Ile Leu Arg Gln Gly Val Val Gly
 145 150 155 160
 Ile Thr Glu Ile Ile Val Lys Pro Gly Leu Val Asn Val Asp Phe Ala
 165 170 175
 Asp Val Arg Thr Ile Met Gly Asn Ala Gly Thr Ala Leu Met Gly Ile
 180 185 190
 Gly His Gly Lys Gly Lys Asn Arg Ala Lys Asp Ala Ala Leu Ser Ala
 195 200 205
 Ile Ser Ser Pro Leu Leu Asp Phe Pro Ile Thr Arg Ala Lys Gly Ile
 210 215 220
 Val Phe Asn Ile Val Gly Gly Ser Asp Met Ser Leu Gln Glu Ile Asn
 225 230 235 240
 Ala Ala Ala Glu Val Ile Tyr Glu Asn Val Asp Gln Asp Ala Asn Ile
 245 250 255
 Ile Phe Gly Ala Met Val Asp Asp Lys Met Thr Ser Gly Glu Val Ser
 260 265 270
 Ile Thr Val Leu Ala Thr Gly Phe Ser Thr Asp Tyr Phe Ser Asn Asp

Ser Ile Glu Gly Ala Arg Gly Val Val Phe Asn Ile Thr Gly Gly Ser
 305 310 315 320
 Asp Leu Thr Leu His Glu Val Asn Ala Ala Glu Thr Ile Tyr Glu
 325 330 335
 Val Val Asp Pro Asn Ala Asn Ile Ile Phe Gly Ala Val Ile Asp Asp
 340 345 350
 Arg Leu Gln Gly Glu Val Arg Ile Thr Val Ile Ala Thr Gly Phe Thr
 355 360 365
 Gly Glu Ile Gln Ala Ala Pro Gln Gln Asn Ala Ala Asn Ala Arg Val
 370 375 380
 Val Ser Ala Pro Pro Lys Arg Thr Pro Thr Gln Thr Pro Leu Thr Asn
 385 390 395 400
 Ser Pro Ala Pro Thr Pro Glu Pro Lys Glu Lys Ser Gly Leu Asp Ile
 405 410 415
 Pro Asp Phe Leu Gln Arg Arg Arg Pro Pro Lys Asn
 420 425

<210> 26
 <211> 430
 <212> PRT
 <213> Synechocystis PCC6803

<400> 26
 Met Thr Leu Asn Asn Asp Leu Pro Leu Asn Asn Ile Gly Phe Thr Gly
 1 5 10 15
 Ser Gly Leu Asn Asp Gly Thr Glu Gly Leu Asp Asp Leu Phe Ser Ser
 20 25 30
 Ser Ile Val Asp Asn Glu Pro Leu Glu Ala Leu Val Glu Thr Pro Thr
 35 40 45
 Phe Ala Ser Pro Ser Pro Asn Leu Lys Arg Asp Gln Ile Val Pro Ser
 50 55 60
 Asn Ile Ala Lys Ile Lys Val Ile Gly Val Gly Gly Gly Cys Asn
 65 70 75 80
 Ala Val Asn Arg Met Ile Ala Ser Gly Val Thr Gly Ile Asp Phe Trp
 85 90 95
 Ala Ile Asn Thr Asp Ser Gln Ala Leu Thr Asn Thr Asn Ala Pro Asp
 100 105 110
 Cys Ile Gln Ile Gly Gln Lys Leu Thr Arg Gly Leu Gly Ala Gly Gly
 115 120 125
 Asn Pro Ala Ile Gly Gln Lys Ala Ala Glu Glu Ser Arg Asp Glu Ile
 130 135 140
 Ala Arg Ser Leu Glu Gly Thr Asp Leu Val Phe Ile Thr Ala Gly Met
 145 150 155 160
 Gly Gly Gly Thr Gly Thr Gly Ala Ala Pro Ile Val Ala Glu Val Ala
 165 170 175
 Lys Glu Met Gly Cys Leu Thr Val Gly Ile Val Thr Arg Pro Phe Thr
 180 185 190
 Phe Glu Gly Arg Arg Arg Ala Lys Gln Ala Glu Glu Gly Ile Asn Ala
 195 200 205
 Leu Gln Ser Arg Val Asp Thr Leu Ile Val Ile Pro Asn Asn Gln Leu
 210 215 220
 Leu Ser Val Ile Pro Ala Glu Thr Pro Leu Gln Glu Ala Phe Arg Val
 225 230 235 240
 Ala Asp Asp Ile Leu Arg Gln Gly Val Gln Gly Ile Ser Asp Ile Ile
 245 250 255
 Ile Ile Pro Gly Leu Val Asn Val Asp Phe Ala Asp Val Arg Ala Val

			260					265					270			
Met	Ala	Asp	Ala	Gly	Ser	Ala	Leu	Met	Gly	Ile	Gly	Val	Gly	Ser	Gly	
		275					280					285				
Lys	Ser	Arg	Ala	Lys	Glu	Ala	Ala	Thr	Ala	Ala	Ile	Ser	Ser	Pro	Leu	
	290					295					300					
Leu	Glu	Ser	Ser	Ile	Gln	Gly	Ala	Lys	Gly	Val	Val	Phe	Asn	Val	Thr	
305					310						315				320	
Gly	Gly	Thr	Asp	Leu	Thr	Leu	His	Glu	Val	Asn	Val	Ala	Ala	Glu	Ile	
				325					330					335		
Ile	Tyr	Glu	Val	Val	Asp	Ala	Asp	Ala	Asn	Ile	Ile	Phe	Gly	Ala	Val	
			340					345					350			
Ile	Asp	Asp	Arg	Leu	Gln	Gly	Glu	Met	Arg	Ile	Thr	Val	Ile	Ala	Thr	
		355					360					365				
Gly	Phe	Asn	Gly	Glu	Lys	Glu	Lys	Pro	Gln	Ala	Lys	Thr	Ser	Ser	Lys	
	370					375					380					
Pro	Val	Leu	Ser	Gly	Pro	Pro	Ala	Gly	Val	Glu	Thr	Val	Pro	Ser	Thr	
385					390					395					400	
Thr	Thr	Pro	Glu	Asp	Pro	Leu	Gly	Glu	Ile	Pro	Met	Ala	Pro	Glu	Leu	
				405					410					415		
Asp	Ile	Pro	Asp	Phe	Leu	Gln	Lys	Arg	Arg	Phe	Pro	Arg	Arg			
			420					425					430			

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<210> 27
<211> 433
<212> PRT
<213> Arabidopsis thaliana
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<400>	27														
Met	Ala	Ile	Ile	Pro	Leu	Ala	Gln	Leu	Asn	Glu	Leu	Thr	Ile	Ser	Ser
1				5					10					15	
Ser	Ser	Ser	Ser	Phe	Leu	Thr	Lys	Ser	Ile	Ser	Ser	His	Ser	Leu	His
			20					25					30		
Ser	Ser	Cys	Ile	Cys	Ala	Ser	Ser	Arg	Ile	Ser	Gln	Phe	Arg	Gly	Gly
		35					40					45			
Phe	Ser	Lys	Arg	Arg	Ser	Asp	Ser	Thr	Arg	Ser	Lys	Ser	Met	Arg	Leu
	50					55					60				
Arg	Cys	Ser	Phe	Ser	Pro	Met	Glu	Ser	Ala	Arg	Ile	Lys	Val	Ile	Gly
65					70					75					80
Val	Gly	Gly	Gly	Gly	Asn	Asn	Ala	Val	Asn	Arg	Met	Ile	Ser	Ser	Gly
				85					90					95	
Leu	Gln	Ser	Val	Asp	Phe	Tyr	Ala	Ile	Asn	Thr	Asp	Ser	Gln	Ala	Leu
			100					105					110		
Leu	Gln	Phe	Ser	Ala	Glu	Asn	Pro	Leu	Gln	Ile	Gly	Glu	Leu	Leu	Thr
		115					120					125			
Arg	Gly	Leu	Gly	Thr	Gly	Gly	Asn	Pro	Leu	Leu	Gly	Glu	Gln	Ala	Ala
	130					135						140			
Glu	Glu	Ser	Lys	Asp	Ala	Ile	Ala	Asn	Ala	Leu	Lys	Gly	Ser	Asp	Leu
145					150					155				160	
Val	Phe	Ile	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr	Gly	Ser	Gly	Ala	Ala
				165					170					175	
Pro	Val	Val	Ala	Gln	Ile	Ser	Lys	Asp	Ala	Gly	Tyr	Leu	Thr	Val	Gly
			180					185					190		
Val	Val	Thr	Tyr	Pro	Phe	Ser	Phe	Glu	Gly	Arg	Lys	Arg	Ser	Leu	Gln
		195					200					205			
Ala	Leu	Glu	Ala	Ile	Glu	Lys	Leu	Gln	Lys	Asn	Val	Asp	Thr	Leu	Ile
	210					215					220				

165 170 175
 Ala Gly Tyr Leu Thr Val Gly Val Val Thr Tyr Pro Phe Ser Phe Glu
 180 185 190
 Gly Arg Lys Arg Ser Leu Gln Ala Leu Glu Ala Ile Glu Lys Leu Gln
 195 200 205
 Lys Asn Val Asp Thr Leu Ile Val Ile Pro Asn Asp Arg Leu Leu Asp
 210 215 220
 Ile Ala Asp Glu Gln Met Pro Leu Gln Asp Ala Phe Arg Leu Ala Asp
 225 230 235 240
 Asp Val Leu Arg Gln Gly Val Gln Gly Ile Ser Asp Ile Ile Thr Ile
 245 250 255
 Pro Gly Leu Val Asn Val Asp Phe Ala Asp Val Lys Ala Val Met Lys
 260 265 270
 Asp Ser Gly Thr Ala Met Leu Gly Val Gly Val Ser Ser Gly Lys Asn
 275 280 285
 Arg Ala Glu Glu Ala Ala Glu Gln Ala Thr Leu Ala Pro Leu Ile Gly
 290 295 300
 Ser Ser Ile Gln Ser Ala Thr Gly Val Val Tyr Asn Ile Thr Gly Gly
 305 310 315 320
 Lys Asp Ile Thr Leu Gln Glu Val Asn Arg Val Ser Gln Val Val Thr
 325 330 335
 Ser Leu Ala Asp Pro Ser Ala Asn Ile Ile Phe Gly Ala Val Val Asp
 340 345 350
 Asp Arg Tyr Thr Gly Glu Ile His Val Thr Ile Ile Ala Thr Gly Phe
 355 360 365
 Ser Gln Ser Phe Gln Lys Lys Leu Leu Thr Asp Pro Arg Ala Ala Lys
 370 375 380
 Leu Leu Asp Lys Val Ala Glu Gly Lys Glu Ser Lys Thr Val Pro Pro
 385 390 395 400
 Pro Leu Lys Ser Ser Asn Phe Ser Ser Lys Val Glu Ser Arg Pro Pro
 405 410 415
 Pro Pro Arg Lys Leu Phe Phe
 420

<210> 29
 <211> 413
 <212> PRT
 <213> Nicotiana tabacum

<400> 29
 Met Ala Thr Ile Ser Asn Pro Ala Glu Ile Ala Ala Ser Ser Pro Ser
 1 5 10 15
 Phe Ala Phe Tyr His Ser Ser Phe Ile Pro Lys Gln Cys Cys Phe Thr
 20 25 30
 Lys Ala Arg Arg Lys Ser Leu Cys Lys Pro Gln Arg Phe Ser Ile Ser
 35 40 45
 Ser Ser Phe Thr Pro Phe Asp Ser Ala Lys Ile Lys Val Ile Gly Val
 50 55 60
 Gly Gly Gly Gly Asn Asn Ala Val Asn Arg Met Ile Gly Ser Gly Leu
 65 70 75 80
 Gln Gly Val Asp Phe Tyr Ala Ile Asn Thr Asp Ala Gln Ala Leu Leu
 85 90 95
 Gln Ser Ala Ala Glu Asn Pro Leu Gln Ile Gly Glu Leu Leu Thr Arg
 100 105 110
 Gly Leu Gly Thr Gly Gly Asn Pro Leu Leu Gly Glu Gln Ala Ala Glu
 115 120 125

Glu	Ser	Lys	Glu	Ala	Ile	Ala	Asn	Ser	Leu	Lys	Gly	Ser	Asp	Met	Val
130						135					140				
Phe	Ile	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr	Gly	Ser	Gly	Ala	Ala	Pro
145					150					155					160
Val	Val	Ala	Gln	Ile	Ala	Lys	Glu	Ala	Gly	Tyr	Leu	Thr	Val	Gly	Val
				165					170					175	
Val	Thr	Tyr	Pro	Phe	Ser	Phe	Glu	Gly	Arg	Lys	Arg	Ser	Val	Gln	Ala
			180					185					190		
Leu	Glu	Ala	Ile	Glu	Lys	Leu	Gln	Lys	Asn	Val	Asp	Thr	Leu	Ile	Val
			195				200				205				
Ile	Pro	Asn	Asp	Arg	Leu	Leu	Asp	Ile	Ala	Asp	Glu	Gln	Thr	Pro	Leu
	210					215					220				
Gln	Asp	Ala	Phe	Leu	Leu	Ala	Asp	Asp	Val	Leu	Arg	Gln	Gly	Val	Gln
225					230					235					240
Gly	Ile	Ser	Asp	Ile	Ile	Thr	Ile	Pro	Gly	Leu	Val	Asn	Val	Asp	Phe
				245					250					255	
Ala	Asp	Val	Lys	Ala	Val	Met	Lys	Asp	Ser	Gly	Thr	Ala	Met	Leu	Gly
			260					265					270		
Val	Gly	Val	Ser	Ser	Ser	Lys	Asn	Arg	Ala	Glu	Glu	Ala	Ala	Glu	Gln
			275				280					285			
Ala	Thr	Leu	Ala	Pro	Leu	Ile	Gly	Ser	Ser	Ile	Gln	Ser	Ala	Thr	Gly
	290					295					300				
Val	Val	Tyr	Asn	Ile	Thr	Gly	Gly	Lys	Asp	Ile	Thr	Leu	Gln	Glu	Val
305				310						315					320
Asn	Arg	Val	Ser	Gln	Val	Val	Thr	Ser	Leu	Ala	Asp	Pro	Ser	Ala	Asn
				325					330					335	
Ile	Ile	Phe	Gly	Ala	Val	Val	Asp	Glu	Arg	Tyr	Asn	Gly	Glu	Ile	His
			340					345					350		
Val	Thr	Ile	Ile	Ala	Thr	Gly	Phe	Thr	Gln	Ser	Phe	Gln	Lys	Thr	Leu
		355				360					365				
Leu	Ser	Asp	Pro	Arg	Gly	Ala	Lys	Leu	Ala	Asp	Lys	Gly	Pro	Val	Ile
	370					375				380					
Gln	Glu	Ser	Met	Ala	Ser	Pro	Val	Thr	Leu	Arg	Ser	Ser	Thr	Ser	Pro
385				390						395					400
Ser	Thr	Thr	Ser	Arg	Thr	Pro	Thr	Arg	Arg	Leu	Phe	Phe			
				405					410						

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<210> 30
<211> 419
<212> PRT
<213> Nicotiana tabacum
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<400> 30																
Met	Ala	Thr	Met	Leu	Gly	Leu	Ser	Asn	Pro	Ala	Glu	Ile	Ala	Ala	Ser	
1				5				10						15		
Ser	Pro	Ser	Ser	Thr	Ser	Phe	Ala	Phe	Tyr	His	Ser	Ser	Phe	Ile	Pro	
			20					25					30			
Lys	Gln	Cys	Cys	Phe	Thr	Lys	Ala	Arg	Arg	Lys	Ser	Leu	Cys	Lys	Pro	
		35					40					45				
Gln	Arg	Phe	Ser	Ile	Ser	Ser	Ser	Phe	Thr	Pro	Phe	Asp	Ser	Ala	Lys	
	50					55					60					
Ile	Lys	Val	Ile	Gly	Val	Gly	Gly	Gly	Gly	Asn	Asn	Ala	Val	Asn	Arg	
65				70						75				80		
Met	Ile	Gly	Ser	Gly	Leu	Gln	Gly	Val	Asp	Phe	Tyr	Ala	Ile	Asn	Thr	
				85					90					95		
Asp	Ala	Gln	Ala	Leu	Leu	Gln	Ser	Ala	Ala	Glu	Asn	Pro	Leu	Gln	Ile	

[illegible]

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<210> 31
<211> 408
<212> PRT
<213> Nicotiana tabacum
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<400> 31															
Gly	Leu	Ser	Ser	Asn	Thr	Gly	Ile	Asp	Ile	Leu	Ser	Ser	Ser	Ser	Asn
1				5					10					15	
Ser	Leu	Ser	Phe	Tyr	His	Ser	Thr	Arg	Phe	Thr	Gln	Cys	Phe	Ser	Pro
			20					25					30		
Lys	Ser	Leu	Cys	Lys	Arg	Gln	Arg	Arg	Arg	Phe	Ser	Ile	Cys	Ser	Ser
		35				40						45			
Leu	Ser	Ser	Ala	Lys	Ile	Lys	Val	Val	Gly	Val	Gly	Gly	Gly	Gly	Asn
	50					55					60				

Asn Ala Val Asn Arg Met Ile Gly Ser Gly Leu Gln Gly Val Asp Phe
 65 70 75 80
 Tyr Ala Val Asn Thr Asp Ala Gln Ala Leu Gln Ser Thr Val Glu
 85 90 95
 Asn Pro Ile Gln Ile Gly Glu Leu Leu Thr Arg Gly Leu Gly Thr Gly
 100 105 110
 Gly Asn Pro Leu Leu Gly Glu Gln Ala Ala Glu Glu Ser Lys Glu His
 115 120 125
 Ile Ala Asn Ala Leu Lys Gly Ser Asp Met Val Phe Ile Thr Ala Gly
 130 135 140
 Met Gly Gly Gly Thr Gly Ser Gly Ala Ala Pro Val Val Ala Gln Ile
 145 150 155 160
 Ala Lys Glu Ala Gly Tyr Leu Thr Val Gly Val Val Thr Tyr Pro Phe
 165 170 175
 Ser Phe Glu Gly Arg Lys Arg Ser Leu Gln Ala Leu Glu Ala Ile Glu
 180 185 190
 Lys Leu Gln Lys Asn Val Asp Thr Leu Ile Val Ile Pro Asn Asp Arg
 195 200 205
 Leu Leu Asp Ile Ala Asp Glu Gln Thr Pro Leu Gln Asn Ala Phe Leu
 210 215 220
 Leu Ala Asp Asp Val Leu Cys Gln Gly Val Gln Gly Ile Ser Asp Ile
 225 230 235 240
 Ile Thr Ile Pro Gly Leu Val Asn Val Asp Phe Ala Asp Val Lys Ala
 245 250 255
 Ile Met Lys Asp Ser Gly Thr Ala Met Leu Gly Val Gly Val Ser Ser
 260 265 270
 Ser Arg Asn Arg Ala Glu Glu Ala Ala Glu Gln Ala Thr Leu Ala Pro
 275 280 285
 Leu Ile Gly Leu Ser Ile Gln Ser Ala Thr Gly Val Val Tyr Asn Ile
 290 295 300
 Thr Gly Gly Lys Asp Ile Thr Leu Gln Glu Val Asn Lys Val Ser Gln
 305 310 315 320
 Val Val Thr Ser Leu Ala Asp Pro Ser Ala Asn Ile Ile Phe Gly Ala
 325 330 335
 Val Val Asp Glu Arg Tyr Asn Gly Glu Ile Gln Val Thr Leu Ile Ala
 340 345 350
 Thr Gly Phe Ala Gln Ser Phe Gln Asn Ser Leu Leu Thr Asp Pro Arg
 355 360 365
 Gly Ala Lys Leu Val Asp Lys Ser Lys Gly Thr Thr Glu Arg Thr Val
 370 375 380
 Ser Pro Asp Thr Leu Arg Ser Ser Glu Ser Pro Ser Thr Lys Pro Arg
 385 390 395 400
 Pro Ala Ala Arg Arg Leu Phe Phe
 405

<210> 32

<211> 413

<212> PRT

<213> Nicotiana tabacum

<400> 32

Met Ala Thr Met Leu Gly Leu Ser Ser Asn Thr Gly Ile Asp Ile Leu
 1 5 10 15
 Ser Ser Ser Ser Asn Ser Leu Ser Phe Tyr His Ser Thr Arg Phe Thr
 20 25 30
 Gln Cys Phe Ser Pro Lys Ser Leu Cys Lys Arg Gln Arg Arg Arg Phe

